

REMARKS

Applicants acknowledge receipt of the *Office Action* dated April 21, 2006 wherein: (1) an election/restriction requirement was issued; (2) claims 1-5, 6-19, 20-31, 39-50 and 53-56 were rejected under 35 U.S.C. § 102(b); (3) claims 4, 19 and 56 were rejected under 35 U.S.C. § 103(a); and (4) claims 32-38, 51 and 52 were objected to as being dependent upon a rejected base claim, but would otherwise be allowable.

Status of the Claims

Claims 2-5, 9-15, 17-29, 35-39, 45-49, 51, 52 and 54-56 are in original form.

Claims 1, 7, 16, 32-34, 40, 42 and 43 are currently amended.

Claims 6, 8, 30, 31, 41, 44, 50, 53 and 57-80 have been canceled.

Allowable Subject Matter

Claims 32-38, 51 and 52 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants acknowledge with appreciation the allowability of claims 32-38, 51 and 52.

Applicants have rewritten allowable claims 32-34 in independent form. Therefore, independent claims 32-34 are now allowable, as are claims 35-38 that depend from claim 34.

Election/Restrictions

The Patent Office requires Applicants to elect between the following groups of claims: **Group I** (claims 1-56) drawn to a downhole tool dissolvable by a chemical solution; **Group II** (claims 57-61 and 67-73) drawn to a downhole tool dissolvable by use of ultraviolet; and **Group III** (claims 62-66 and 74-80) drawn to a downhole tool dissolvable by use of a nuclear source.

The Examiner acknowledged Applicants' provisional election to prosecute the claims of Group I, claims 1-56, and therefore, the Examiner withdrew the remaining claims 57-80 from further consideration as being drawn to non-elected inventions. Applicants affirm the election of Group I, claims 1-56 without traverse. Applicants have also canceled the remaining claims 57-80, and Applicants reserve the right to file one or more divisional applications directed to the subject matter defined by these canceled claims 57-80.

Rejections under 35 USC § 102(b) in view of Owens

Claims 1, 5, 6-16, 20-31, 39-50 and 53 stand rejected under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 5,607,017 to Owens (hereinafter *Owens*). Claims 6, 8, 30, 31, 41, 44, 50 and 53 have been canceled. Claims 5, 7 and 9-15 each depend from independent claim 1, thus claims 5, 7 and 9-15 stand or fall on the application of *Owens* to independent claim 1. Likewise, claims 20-29 and 39 each depend from independent claim 16, thus claims 20-29 and 39 stand or fall on the application of *Owens* to independent claim 16. Similarly, claims 42, 43 and 45-49 each depend from independent claim 40, thus claims 41-50 and 53 stand or fall on the application of *Owens* to independent claim 40. According to MPEP § 2131, “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” Applicants respectfully submit that at least because *Owens* fails to disclose a frangible enclosure or frangible object that contains a chemical solution, as discussed in detail below, *Owens* fails to disclose each and every element set forth in independent claims 1, 16 and 40 and consequently fails to anticipate rejected pending claims 5, 7, 9-15, 20-29, 39, 42, 43 and 45-50 that depend therefrom.

Owens discloses a temporary plug 16 generally comprising a sheath 26, a control mechanism 28, and a core material 30 (col. 2, lines 40-41). The core material 30 is dissolvable when contacted directly by a fluid, such as by fluid 18 within a tubing 14 extending into a well 12 (col 2, lines 26-45). In an alternate embodiment shown in Figure 5, a sheath 44 isolates the core material 30 from stored fluid 46 (col. 3, lines 50-52). The sheath 26, 44 protects core material 30 from premature dissolution due to contact with the fluid 18, 46; and the sheath 26, 44 may be formed from material such as Viton, Nitrile, or Teflon (col. 2, lines 55-62).

The control mechanism 28 takes various forms and operates to expose the core material 30 to the fluid 18. The control mechanism 28 may comprise a void 34 in the core material 30, the void 34 including an aperture 36 sealed with sheath 26 (col. 2, line 67 to col. 3, line 1). In this embodiment, the sheath 26 is breached by pressurizing the fluid 18 in the tubing 14 beyond the yield strength of the sheath 26 extending across the aperture 34 such that sheath 26 is pierced or punctured and fluid 18 enters void 34 (col. 3, line 1-6). In other embodiments, a device 39 punctures sheath 26 (col. 3, lines 34-35). In the alternate embodiment of Figure 5, control mechanism 48 selectively punctures sheath 44 to permit contact between the stored fluid 46 and the core material 30 to cause dissolution of the core material 30 (col. 3, lines 52-54).

Applicants respectfully submit that amended claim 1 is novel over *Owens* at least because *Owens* fails to disclose a **frangible** enclosure that stores a chemical solution, wherein the chemical solution is released by **breaking** the frangible enclosure. Instead, *Owens* discloses a **flexible** elastomeric sheath 44 that isolates stored fluid 46 from the dissolvable core 30, wherein the stored fluid 46 is released by **piercing or puncturing** the sheath 44 via control mechanism 48. Applicants respectfully submit that a flexible elastomeric sheath 26, 44 as disclosed by *Owens* is not structurally equivalent to a rigid frangible enclosure, nor is such a sheath 26, 44 functionally equivalent to a frangible enclosure since the sheath 26, 44 is not breakable or fracturable. In describing the prior art temporary plugs that are removable by fracturing or rupturing, *Owens* explains that this method leaves plug fragments in the well that could interfere with other well completion equipment (col. 1, lines 28-44). Therefore, *Owens* clearly acknowledges the difference between a frangible body that is removable by breaking or fracturing, and a flexible body, such as an elastomeric sheath 26, 44, that is breached by piercing or puncturing. Accordingly, Applicants respectfully submit that amended claim 1, and claims 5, 7 and 9-15 that depend therefrom, are novel and allowable over *Owens*, which fails to teach each and every element of amended claim 1.

Similarly, Applicants respectfully submit that amended claim 16 is novel over *Owens* at least because *Owens* fails to disclose a method comprising applying a chemical solution to a tool by **breaking a frangible** object containing the chemical solution. Instead, as described above, *Owens* discloses a method comprising applying a fluid 18, 46 to a tool 16 by **piercing or**

puncturing a **flexible** elastomeric sheath 26, 44 via a control mechanism 28, 48. Therefore Applicants respectfully submit that amended claim 16, and claims 20-29 and 39 that depend therefrom, are novel and allowable over *Owens*, which fails to teach each and every element of amended claim 16.

Likewise, Applicants respectfully submit that amended claim 40 is novel over *Owens* at least because *Owens* fails to disclose a system for applying a chemical solution to a downhole tool to dissolve the downhole tool within a well bore comprising a **frangible** enclosure that contains the chemical solution, wherein the enclosure is **broken** to release the chemical. Instead, *Owens* discloses a **flexible** elastomeric sheath 44 that isolates stored fluid 46 from the dissolvable core 30, wherein the stored fluid 46 is released by **piercing or puncturing** the sheath 44 via control mechanism 48. Therefore Applicants respectfully submit that amended claim 40, and claims 42, 43 and 45-49 that depend therefrom, are novel and allowable over *Owens*, which fails to teach each and every element of amended claim 40.

Rejections under 35 USC § 102(b) in view of Gano

Claims 1-3, 16-18, 40 and 53-55 stand rejected under 35 U.S.C. § 102 (b) as being anticipated by European Patent No. 0681087 to Gano et al. (hereinafter *Gano*). Claim 53 has been canceled. Claims 2 and 3 each depend from independent claim 1, thus claims 2 and 3 stand or fall on the application of *Gano* to independent claim 1. Claims 17 and 18 each depend from independent claim 16, thus claims 17 and 18 stand or fall on the application of *Gano* to independent claim 16. Claims 54 and 55 each depend from independent claim 40, thus claims 54 and 55 stand or fall on the application of *Gano* to independent claim 40. Applicants respectfully submit that *Gano* fails to teach each and every element as set forth in independent claims 1, 16 and 40 and consequently fails to anticipate claims 2, 3, 17, 18, 54 and 55 that depend there from.

In particular, claim 1 has been amended to substantially incorporate the limitations of original claim 6 directed to an enclosure for storing a chemical solution, and this claim was not rejected in view of *Gano*. Accordingly, the rejection of claims 1-3 in view of *Gano* is moot in view of the amendments to claim 1.

Similarly, claim 40 has been amended to substantially incorporate the limitations of original claims 41, 44 and 50, namely a frangible enclosure for containing a chemical solution wherein the enclosure is broken to release the chemical, and none of these original claims 41, 44 and 50 were rejected in view of *Gano*. Accordingly, the rejection of claims 40, 54 and 55 is moot in view of the amendments to claim 40.

With respect to amended method claim 16, Applicants respectfully submit that at least because *Gano* fails to disclose a method comprising dissolving a tool within a well bore via a chemical solution, and applying the chemical solution to the tool by breaking a frangible object containing the chemical solution, *Gano* fails to teach each and every element as set forth in independent claim 16 and consequently fails to anticipate claims 17 and 18 that depend therefrom.

Gano discloses various forms of temporary plugs 10, 20, 70, 102, which include materials that will dissolve in well fluids or break down into sufficiently small particles so as not to foul other components (col. 5, line 54 to col. 6, line 2). In one embodiment, the plug 70 is frangible, and a shear stress is applied to break the frangible plug 70 into pieces (col. 9, lines 52-56). Once the body of the plug 70 has been broken into smaller pieces, or the interior is exposed to the well fluids, the dissolvable materials will dissolve and the other materials will settle in the well or blend with the well fluids (col. 10, lines 3-8).

Applicants respectfully submit that independent claim 16 is novel over *Gano* at least because *Gano* fails to disclose a method comprising dissolving a tool within a well bore via a chemical solution; and applying the chemical solution to the tool by breaking a **frangible object containing** the chemical solution. Instead, *Gano* teaches a method of dissolving a temporary plug by exposure to well fluid; and breaking the temporary tool, not breaking a frangible object containing a chemical solution. Therefore Applicants respectfully submit that amended claim 16, and claims 17 and 18, which depend therefrom, are novel and allowable over *Gano*, which fails to teach each and every element of amended claim 16.

Rejections under 35 USC § 102(b) in view of Grimmer

Claims 1, 4, 16, 19, 40 and 56 stands rejected under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 3,211,232 to Grimmer (hereinafter *Grimmer*). Claim 4 depends on independent claim 1, thus claim 4 stands or falls on the application of *Grimmer* to independent claim 1. Claim 19 depends on independent claim 16, thus claim 19 stands or falls on the application of *Grimmer* to independent claim 16. Claim 56 depends on independent claim 40, thus claim 56 stands or falls on the application of *Grimmer* to independent claim 40. Applicants respectfully submit that *Grimmer* fails to teach each and every element as set forth in independent claims 1, 16 and 40 and consequently fails to anticipate claims 4, 19 and 56 that depend therefrom.

In particular, claim 1 has been amended to substantially incorporate the limitations of original claim 6 directed to an enclosure for storing a chemical solution, and this claim was not rejected in view of *Grimmer*. Accordingly, the rejection of claims 1 and 4 in view of *Grimmer* is moot in view of the amendments to claim 1. Similarly, claim 40 has been amended to substantially incorporate the limitations of original claims 41, 44 and 50, namely a frangible enclosure for containing a chemical solution wherein the enclosure is broken to release the chemical, and none of these original claims 41, 44 and 50 were rejected in view of *Grimmer*. Accordingly, the rejection of claims 40 and 56 is moot in view of the amendments to claim 40.

With respect to amended method claim 16, Applicants respectfully submit that at least because *Grimmer* fails to disclose a method comprising applying a chemical solution to the tool by breaking a frangible object containing the chemical solution, *Grimmer* fails to teach each and every element as set forth in independent claim 16 and consequently fails to anticipate claim 19 that depends therefrom.

Grimmer discloses a valve sleeve 70 forming part of a larger assembly, and a valve shifting mechanism comprising a collet 130, a collet mandrel 140, and a drop plug 150 that may be expelled from the valve sleeve 70 to the bottom of the well by fluid pressure after the shifting mechanism has shifted the sleeve 70 to its lowermost position (col. 6, lines 3-27). “The collet, collet mandrel, and drop plug are preferably made of aluminum or similar metal which can be

readily dissolved in the well by caustic or acid solutions should it be desired or necessary that these elements be removed or eliminated from the well” (col. 6, lines 28-32).

Applicants respectfully submit that independent claim 16 is novel over *Grimmer* at least because *Grimmer* fails to disclose a method comprising dissolving a tool within a well bore via a chemical solution, and applying the chemical solution to the tool by breaking a frangible object containing the chemical solution. Instead, *Grimmer* only teaches that a portion of a downhole tool, namely the shifting mechanism components, can be expelled and dissolved in the well by caustic or acid solutions when desired. *Grimmer* does not contemplate any method that includes applying the chemical solution to a tool by breaking a frangible object containing the chemical solution. Therefore Applicants respectfully submit that amended claim 16 and claim 19, which depends therefrom, are novel and allowable over *Grimmer*, which fails to teach each and every element of amended claim 16.

Rejections under 35 USC § 103(a)

Claims 4, 19 and 56 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Owens* in combination with *Grimmer*. Applicants respectfully submit that the combination of *Owens* and *Grimmer* does not establish a *prima facie* case of obviousness as to claim 4, 19 and 56. According to MPEP 2142, three basic criteria must be met to establish a *prima facie* case of obviousness:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the Applicants’ disclosure.

Similarly, the fact that the Examiner has the burden of proof with respect to the elements of the *prima facie* case of obviousness is also well defined in MPEP 2142:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

Assuming for sake of argument that the combination of *Owens* and *Grimmer* is proper (and without conceding such), the Patent Office has nonetheless failed to establish a *prima facie* case of obviousness for claim 4 as such a combination does not teach or suggest all of the claim limitations. In particular, claim 4 depends from and incorporates the limitations of independent claim 1. As explained above with respect to the rejection of claim 1 under 35 USC § 102(b), neither *Owens* nor *Grimmer* discloses each and every element of currently amended claim 1, and more specifically, neither of these references teaches or suggests a frangible enclosure that stores a chemical solution, wherein the chemical solution is released by breaking the frangible enclosure. Thus, Applicants respectfully submit that claim 4 is patentable over *Owens* and *Grimmer*.

Similarly, the Patent Office has failed to establish a *prima facie* case of obviousness for claim 19 as the combination of *Owens* and *Grimmer* fails to teach or suggest all of the claim limitations. In particular, claim 19 depends from and incorporates the limitations of independent claim 16. As explained above with respect to the rejection of claim 16 under 35 USC § 102(b), neither *Owens* nor *Grimmer* discloses each and every element of currently amended claim 16, and more specifically, neither of these references teaches or suggests a method comprising applying a chemical solution to a tool by breaking a frangible object containing the chemical solution. Thus, Applicants respectfully submit that claim 19 is patentable over *Owens* and *Grimmer*.

Likewise, the Patent Office has failed to establish a *prima facie* case of obviousness for claim 56 as such a combination does not teach or suggest all of the claim limitations. Claim 56 depends from and incorporates the limitations of independent claim 40. As explained above with respect to the rejection of claim 40 under 35 USC § 102(b), neither *Owens* nor *Grimmer* discloses each and every element of currently amended claim 40, and more specifically, neither of these references teaches or suggests a system for applying a chemical solution to a downhole tool to dissolve the downhole tool within a well bore comprising a frangible enclosure that contains the chemical solution, wherein the enclosure is broken to release the chemical. Thus, Applicants respectfully submit that claim 56 is patentable over *Owens* and *Grimmer*.

CONCLUSION

Consideration of the foregoing amendments and remarks, reconsideration of the application, and withdrawal of the rejections and objections is respectfully requested by the Applicants. No new matter is introduced by way of the amendment. It is believed that each ground of rejection raised in the *Office Action* dated April 21, 2006 has been fully addressed. If any fee is due as a result of the filing of this paper, please appropriately charge such fee to Deposit Account Number 50-1515 of Conley Rose, P.C., Texas. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

If a telephone conference would facilitate the resolution of any issue or expedite the prosecution of the application, the Examiner is invited to contact the undersigned at the telephone number given below.

Respectfully submitted,

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CONLEY ROSE, P.C.
5700 Granite Parkway, Suite 330
Plano, Texas 75024
Telephone: (972) 731-2288
Facsimile: (972) 731-2289

Shannon W. Bates

Shannon W. Bates
Reg. No. 47,412

ATTORNEY FOR APPLICANTS